In the Claims

1. (Currently Amended) A digital imaging system comprising:

a first imaging sensor;

a second imaging sensor, the second imaging sensor coupled to the first imaging sensor;

a first multichromatic filter coupled to the first imaging sensor, wherein the first multichromatic filter transmits light at a first set of wavelengths, the first set of wavelengths corresponding to at least two imaging channels, and wherein each imaging channel transmitted through the first multichromatic filter corresponds to a different color and the first imaging sensor senses the ~~light transmitted through the first filter~~at least two imaging channels of the first set of wavelengths; and

a second multichromatic filter coupled to the second imaging sensor, wherein the second multichromatic filter transmits the light at a second set of wavelengths, the second set of wavelengths corresponding to at least two imaging channels offset from the imaging channels of the first set of wavelengths, and wherein each imaging channel transmitted through the second multichromatic filter corresponds to a color different from the other transmitted imaging channels and the second imaging sensor senses the at least two imaging channels of the second set of wavelengths~~light transmitted through the second filter~~.

2. (Original) The digital imaging system of claim 1 further comprising:

a processor to calculate a surface reflectance of an object based on the first set of wavelengths and the second set of wavelengths.

3. (Original) The digital imaging system of claim 1, wherein the first imaging sensor is a charge coupled device (CCD) or a complementary metal-oxide semiconductor.

4. (Original) The digital imaging system of claim 1, wherein the second imaging sensor is a charge coupled device (CCD) or a complementary metal-oxide semiconductor.

5. (Currently Amended) The digital imaging system of claim 1, wherein the first multichromatic filter is a trichromatic filter.

6. (Currently Amended) The digital imaging system of claim 1, wherein the second multichromatic filter is a trichromatic filter.

7. (Currently Amended) The digital imaging system of claim 1, wherein the first multichromatic filter provides for three imaging channels.

8. (Currently Amended) The digital imaging system of claim 1, wherein the first multichromatic filter provides for four imaging channels.

9. (Currently Amended) The digital imaging system of claim 1, wherein the second multichromatic filter provides for three imaging channels.

10. (Currently Amended) The digital imaging system of claim 1, wherein the second multichromatic filter provides for four imaging channels.

11. (Currently Amended) The digital imaging system of claim 1, wherein the second multichromatic filter provides for two imaging channels.

12. (Canceled)

13. (Currently Amended) A digital imaging apparatus comprising:

a first means for capturing colorimetric information;

a second means for capturing colorimetric information, the first means for capturing colorimetric information coupled to the second means for capturing colorimetric information;

a first means for multichromatic filtering coupled with the first ~~imaging sensor~~ means for capturing colorimetric information, wherein the first means for multichromatic filtering to transmit light at a first set of wavelengths and the first set of wavelengths

corresponds to at least two imaging channels, and wherein each imaging channel transmitted through the first means for multichromatic filtering corresponds to a different color and the first means for capturing colorimetric information senses the at least two imaging channels of the first set of wavelengths~~light transmitted through the first means for filtering~~; and

a second means for multichromatic filtering coupled with the second ~~imaging sensor~~ means for capturing colorimetric information, wherein the second means for multichromatic filtering to transmit the light at a second set of wavelengths, the second set of wavelengths corresponds to at least two imaging channels offset from the imaging channels of the first set of wavelengths, and wherein each imaging channel transmitted through the second means for multichromatic filtering corresponds to a color different from the other transmitted imaging channels and the second means for capturing colorimetric information senses the at least two imaging channels of the second set of wavelengths~~light transmitted through the second means for filtering~~.

14. (Original) The digital imaging apparatus of claim 13 further comprising:

a means for processing to calculate a surface reflectance of an object based on the first set of wavelengths and the second set of wavelengths, the means for processing coupled with the first means for capturing colorimetric information and the second means for capturing colorimetric information.

15. (Currently Amended) A machine-readable medium having instructions to cause a machine to perform a method, the method comprising:

receiving a first set of wavelengths of light at a first sensor via a first multichromatic filter, the first set of wavelengths corresponding to at least two imaging channels and wherein each imaging channel transmitted through the first multichromatic filter corresponds to a different color and;

receiving a second set of wavelengths of the light at a second sensor via a second multichromatic filter, the second set of wavelengths corresponding to at least two imaging channels offset from the imaging channels of the first set of wavelengths and wherein each imaging channel transmitted through the second multichromatic filter corresponds to

a color different from the other transmitted imaging channels; and

processing the first set of wavelengths and the second set of wavelengths to calculate a surface reflectance of an object.

16. (Original) The machine-readable medium of claim 15, wherein the first set of wavelengths provides three imaging channels.

17. (Original) The machine-readable medium of claim 15, wherein the first set of wavelengths provides four imaging channels.

18. (Original) The machine-readable medium of claim 15, wherein the second set of wavelengths provides three imaging channels.

19. (Original) The machine-readable medium of claim 15, wherein the second set of wavelengths provides four imaging channels.

20. (Canceled)

21. (Original) The machine-readable medium of claim 15, wherein the second set of wavelengths provides two imaging channels.

22. (Original) The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing principal component analysis.

23. (Original) The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing independent component analysis.

24. (Original) The machine-readable medium of claim 15, wherein the calculation of the surface reflectance includes performing Wiener estimation.

25. (Currently Amended) A method comprising:

receiving a first set of wavelengths of light at a first sensor via a first multichromatic filter, the first set of wavelengths corresponding to at least two imaging channels and wherein each imaging channel transmitted through the first multichromatic filter corresponds to a different color and;

receiving a second set of wavelengths of the light at a second sensor via a second multichromatic filter, the second set of wavelengths corresponding to at least two imaging channels offset from the imaging channels of the first set of wavelengths and wherein each imaging channel transmitted through the second multichromatic filter corresponds to a color different from the other transmitted imaging channels; and

processing the first set of wavelengths and the second set of wavelengths to calculate a surface reflectance of an object.

26. (Original) The method of claim 25, wherein the first set of wavelengths provides three imaging channels.

27. (Original) The method of claim 25, wherein the first set of wavelengths provides four imaging channels.

28. (Original) The method of claim 25, wherein the second set of wavelengths provides three imaging channels.

29. (Original) The method of claim 25, wherein the second set of wavelengths provides four imaging channels.

30. (Canceled)

31. (Original) The method of claim 25, wherein the second set of wavelengths provides two imaging channels.

32. (Original) The method of claim 25, wherein the calculation of the surface reflectance includes performing principal component analysis.

33. (Original) The method of claim 25, wherein the calculation of the surface reflectance includes performing independent component analysis.

34. (Original) The method of claim 25, wherein the calculation of the surface reflectance includes performing Wiener estimation.

35. (New) The digital imaging system of claim 1, wherein the first set of wavelengths includes one imaging channel each corresponding to colors red and blue and the second set of wavelengths includes one imaging channel corresponding to a color that is less than blue wavelengths, one imaging channel corresponding to a color that is in between red and blue wavelengths, and one imaging channel corresponding to a color that is above red wavelengths.